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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/535,449

05/19/2005

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EXAMINER

SUCH, MATTHEW W

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/535,449	Applicant(s) FIX ET AL.	
	Examiner Matthew W. Such	Art Unit 2891	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 3-12 and 14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 3-12 and 14-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement filed 28 September 2005 fails to comply with 37 CFR 1.98(a)(3) because it does not include a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information, of each patent listed that is not in the English language. It has been placed in the application file, but the information referred to therein has not been considered.

Drawings

2. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). Further, as set forth under 37 CFR 1.83(a), *the drawings must show every feature of the invention specified in the claims.* For example, the steps of forming a homogeneous single organic semiconductor layer and converting part of the layer into a conductive functional region; forming a plurality of adjacent first and second regions; covering a first region with a photoresist; and printing of the composition in a second region, at least, must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 3, 5-6, 8, 12 and 14-17 are objected to because of the following informalities: the claims appear to refer to the limitation of "second functional regions" with multiple distinct instances of nomenclature. As such, the phrase "second region" in claim 3, Lines 7, 10, 11, 12, and 13; claim 5, Line 2; claim 6, Line 2; claim 8, Line 3; claim 12, Line 4; claim 14, Line 3; claim 15, Lines 2 and 4; claim 16, Lines 2 and 4; claim 17, Lines 2 and 4 should each read "second functional region" in order to maintain consistent terminology throughout the claims and

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avoid ambiguity as to whether a "second region" is intended to be a unique element from "second functional region". Appropriate correction is required.

4. Claims 4, 6 and 10-11 are objected to because of the following informalities: the claims appear to refer to the limitation of "first functional regions" with multiple distinct instances of nomenclature. As such, the phrase "first region" in claim 4, Line 3; claim 6, Lines 3 and 4; claim 10, Lines 2-3; claim 11, Lines 2-3 should read "first functional region" in order to maintain consistent terminology throughout the claims and avoid ambiguity as to whether a "first region" is intended to be a unique element from "first functional region". Appropriate correction is required.

5. Claims 3 and 4 are objected to because of the following informalities: the phrase "different conductive functional region" of claim 3, Lines 8-9 should read "conductive functional second region" or, in the alternative, the phrase "conductive functional second region" in claim 4, Line 2 should read "different conductive functional region" in order to maintain a consistent terminology of the element throughout the claims. Appropriate correction is required to one of the instances.

6. Claims 3-4, 6, 8, 10-12 and 14-17 are objected to because of the following informalities: the claims appear to refer to the limitation of "homogeneous single organic semiconductive layer" with multiple distinct instances of nomenclature. As such, the phrase "the semiconductive function layer" in claim 3, Line 7 should read "homogeneous single organic semiconductive

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layer"; the phrase "the single organic layer" in claim 4, Lines 4-5 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive layer" in claim 3, Lines 9-10 and 12 should read "homogeneous single organic semiconductive layer"; the phrase "single organic semiconductive layer" in claim 6, Line 3 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 8, Lines 2-3 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive layer" in claim 10, Line 2 should read "homogeneous single organic semiconductive layer"; the phrase "semiconducting layer" in claim 10, Line 2 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive layer" in claim 11, Line 2 should read "homogeneous single organic semiconductive layer"; the phrase "semiconducting layer" in claim 11, Line 2 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 12, Line 4 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 14, Line 3 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 15, Lines 3-4 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 16, Lines 3-4 should read "homogeneous single organic semiconductive layer"; the phrase "semiconductive functional layer" in claim 17, Lines 3-4 should read "homogeneous single semiconductive layer" in order to maintain consistent terminology throughout the claims and avoid ambiguity as to whether a "semiconductive functional layer" is intended to be a unique element from the "homogeneous single organic semiconductive layer". Appropriate correction is required.

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7. Claim 9 is objected to because of the following informalities: there is an extraneous "0" at the beginning of Line 3. Appropriate correction is required.

8. Claim 15 is objected to because of the following informalities: there is an extraneous "0" in the phrase "(Currently amen0nded)" in Line 1. Appropriate correction is required.

9. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, claim 4 recites "in which the conductive functional second region forms electrodes and/or conductor tracks", which is merely a statement of an intended outcome or use of the conductive functional second region which does not positively recite any step further limiting the method of claim 3. Furthermore, claim 4 recites "the electrodes and/or conductor tracks and the semiconductive functional first region being producing with structuring in a one process printing step of the single organic layer". However, this recitation does not further limit the previous claim because claim 3 already requires "a single process step" and "printing". Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

10. Claim 7 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Specifically, claim 7 recites "wherein the step of forming a homogeneous single organic semiconductive layer into two different, by adjacent first and second function regions comprises forming the single layer into a

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plurality of at least said adjacent second function regions". However, the phrase "a plurality of at least said adjacent second functional regions" does not further limit the claim because a plurality of regions, which are each second regions (i.e. several second regions adjacent to one another), merely is a description of a single region since they are all adjacent one another. As such, this language has no physical meaning beyond a single region that is arbitrarily defined as a plurality of adjacent regions and since each of the adjacent regions are all "second regions" (and hence no physical difference from one another) there is only one region required. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Double Patenting

11. Applicant is advised that should claim 5 be found allowable, claims 9 and 12 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Specifically, each of these claims recites treating the second region with a redox composition. Further regarding claim 9 (which depends from 4), since claim 4 does not further limit claim 3 (as discussed above) and the phrase "a controlled manner" does not limit the scope of the claim since the treatment is controlled under the conditions which it is performed and the claim does not limit how the introduction is controlled to distinguish from the scope from claims 5 and 12.

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12. Applicant is advised that should claim 6 be found allowable, claim 10 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Specifically, each of these claims recites covering the semiconductive layer first region with a photoresist. Further regarding claim 10 (which depends from 4), since claim 4 does not further limit claim 3 (as discussed above) the scope of claim 10 does not distinguish from the scope of claim 6.

13. Applicant is advised that should claim 8 be found allowable, claims 15 and 16 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k). Specifically, each of these claims recites treating the second region with an oxidizing agent. Further regarding claim 15 (which depends from 4), since claim 4 does not further limit claim 3 (as discussed above) the scope of claim 15 does not distinguish from the scope of claim 8.

Claim Rejections - 35 USC § 112

14. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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15. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitation of "converting the semiconductive functional layer in the second region in a controlled manner by printing the second region with a composition for implementing said partial reaction" renders the claim indefinite because it is unclear how the second region can be printed since it already exists. It appears from the manner in which the claim is written that "a composition" is the second region which cannot be printed since the claim requires it already exists and is converted. Clarification is required.

16. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the claim recites "covering the single organic semiconductive layer first region with a photoresist while exposing the first region" in Lines 2 and 3. The phrase "while exposing the first region" renders the claim indefinite because it is unclear what the first region is being exposed to, such as light or a redox composition, etc. Furthermore, if the recitation of "exposing" is intended to mean that the photoresist layer does not cover the first region, it is unclear how the first region can be covered with photoresist while also being exposed, since the conditions are mutually exclusive. Clarification is required.

17. Claims 14 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims each recite the limitation "the exposed second region".

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There is insufficient antecedent basis for this limitation in the claim. Furthermore, the recitation of "the exposed second region" renders the claim indefinite because it is unclear what the second region is being exposed to, such as light, a redox composition, etc., or if it is intended to convey that the second region is not covered. If the second region is not covered, the claim does not define what the second region is not covered with. Clarification is required.

18. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims each recite the limitation "the uncovered second region". There is insufficient antecedent basis for this limitation in the claim. Furthermore, the recitation of "the uncovered second region" renders the claim indefinite because it is unclear what the second region is uncovered with. Clarification is required.

Claim Rejections - 35 USC § 102

19. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

20. In so far as definite, claims 3-5, 7-9, 12, 15-16 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Hudson ('840).

Hudson teaches a method of producing an organic electronic component by converting a portion of a single homogeneous layer of semiconductive polythiophene, for example (Element 56; Col. 12, Lines 22-25; Col. 14, Lines 25-26) into a conductive portion (Element 62; Col. 14, Lines 25-29) by controlled printing a redox composition of time-stable oxidizing agent, such as 1,4-benzoquinone (Element 64; Col. 14, Lines 25-41, at least). A first portion remains as undoped semiconductive polythiophene (Element 56, Figs. 3a-3c, for example) and a second portion becomes a doped conductive polythiophene (Element 62, Fig. 3a-3c, for example).

There is a plurality of adjacent first and second regions (see Fig. 3) and claim 18 does not distinguish how the regions are adjacent. As such, the order of regions can be from left-to-right as first-second-second-first. Since the second regions are undistinguished from each other an arbitrary dividing line can be define a boundary separating a second region into two adjacent regions.

The examiner notes that the claims fail to define a degree (such as a conductivity level) which distinguishes a semiconductive state from a conductive state, for example, and as such the conductivities can be arbitrarily defined so long as the conductivity of the semiconductive state is lower than the conductive state.

The claims do not limit "a single process step" or "one process step" and as such any method can be arbitrarily defined to meet the claims. The recitation of "a single process step" does not limit the claim because the claim fails to distinguish what is included and excluded from "a single process step" to distinguish over the prior art of Hudson. As such, anything can arbitrarily be chosen to be "a single process step" and the printing process of Hudson (outlined in Figs. 3a-3c and associated text, for example) is "a single process step".

Claims 4 and 7 do not further limit the scope of claim 3, and as such are not distinguished from the prior art of Hudson.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. In so far as definite, claims 6, 10-11, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudson (‘840) in view of Dyer (‘120).

Hudson teaches that the oxidizing agent (Element 64) is selectively applied on the second region but does not teach forming a photoresist on the first regions blocking the oxidizing agent from forming on the second regions.

Dyer teaches the conventional lift-off method of applying a photoresist (Element 10) on a substrate and patterning the photoresist to expose second regions with leaving first regions covered (Fig. 1D). An film (Element 17) is deposited on the second region and is blocked from the first regions by the photoresist (Fig. 1E). It would have been obvious to one of ordinary skill in the art at the time the invention was made to form a photoresist on the first regions of Hudson in order to form the oxidizing agent only on the second region as required by Hudson since the photoresist forms a suitable mask (Dyer Abstract, for example).

Response to Arguments

23. Applicant's arguments with respect to claims 3-12 and 14-18 have been considered but are moot in view of the new ground(s) of rejection.

Related Prior Art

24. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- i. De Leeuw ('406; Col. 10, Lines 48-58) and MacDiarmid ('568) teaches methods of increasing the conductivity of semiconductive organic films by exposing the film to m-cresol, for example;
- ii. Holdcroft ('030) teaches patterning low conductivity organic lines and making the lines conductive through oxidation reactions;
- iii. De Leeuw ('800) teaches methods of forming conductive patterns in films;
- iv. Anderson ('734) teaches using printing to render semiconductive lines more conductive using printing techniques;
- v. Cloots (EP '397) teaches methods of rendering selective semiconductive regions more conductive.

Conclusion

25. Applicant's amendment changed the scope of the claimed invention from previously presented subject matter and necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew W. Such whose telephone number is (571) 272-8895. The examiner can normally be reached on Monday - Friday 9AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bradley W. Baumeister can be reached on (571) 272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Matthew W. Such
Examiner, Art Unit 2891

MWS
5/14/08

/BRADLEY W BAUMEISTER/
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